UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,460	08/05/2003	Hiroshi Kyusojin	112857-419	6730

29175   7590   03/16/2007

BELL, BOYD & LLOYD, LLP
P. O. BOX 1135
CHICAGO, IL 60690

EXAMINER
LE, BRIAN Q

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-13_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-13_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _05 August 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _12/18/2003_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

3.   Claim(s) 12-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows.

Claim 12 recites "A recording medium in which a program for an information supplying ..." embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex

IV). That is, the scope of the presently claimed "A recording medium" (line 1 of claim 12) can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Similarly, regarding claim 13, a program as claimed must be embodied on a "computer-readable medium" or equivalent in order to make the claim statutory.

Claim Objections

4.   Claim 10 is objected to because these claims are very difficult to understand due to the use of confusing language. Appropriate correction is required. The prior art rejection based on the Examiner's best understanding.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-3, 6-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sogabe et al. U.S. Patent No. 6,762,789 and Aliaga et al. U.S. Pub. No. 2002/0176635.

Regarding claim 1, Sogabe teaches an information providing system, comprising:

an information processing apparatus (omnidirectional video processing) (abstract); and

an information supplying apparatus for supplying image data of omnidirectional images to the

information processing apparatus over a network (omnidirectional video processing provides

omnidirectional images over a network) (abstract; column 7, lines 10-17 and column 8, lines 19-

22),

wherein the information supplying apparatus obtains viewpoint information set by the

information processing apparatus (image information of view point) (column 3, lines 1-15);

encodes the image data of the omnidirectional images (compress omnidirectional images before

transfer image data) (column 11, lines 15-23), and transmits the encoded image data of the

omnidirectional images to the information processing apparatus (column 11, lines 29-40), and

wherein the information processing apparatus decodes, out of the received image data of

the omnidirectional images, image data corresponding to the viewpoint information, and outputs

the decoded image data (image recovering means to recover the compressed image) (column10,

lines 15-21 and column 11, lines 20-28).

Sogabe does not explicitly teach an image in a second direction has a lower resolution

than an image data of the first direction corresponding to the viewpoint information. Aliaga

further teaches an information providing system wherein comprises images taking from direction

point of view (since each point of view comprise a different view direction) (FIG. 1B, element

402 and page 4, column 1, [0047]) and capable of combine images of different resolution

together i.e. one image a different view (second direction) can be lower in resolution than the

other image (first direction) (page 7, column 1, [0082-0083] and page 8, column 2, [0101]).

Modifying Sogabe's method of processing information according to Aliaga would be possible to

have image in one direction is lower in resolution to image in a different direction because

images in an omnidirectional apparatus are taken differently such as different directions,

brightness or distance ...etc may generate different resolution of images. This would improve

processing because it would be able to compensate the resolution difference in mapping, warping

and reconstructing images (page 5, column 2, [0066]) and therefore, it would have been obvious

to one of the ordinary skill in the art to modify Sogabe according to Aliaga.

Regarding claim 2, please refer back to claim 1 for further teachings and explanations.

Regarding claim 3, please refer back to claim 1 for further teachings and explanations. In

addition, Sogabe teaches a receiving means for receiving viewpoint information from the at

least one information processing apparatus (Omnidirectional image pickup means) (FIG. 1).

Regarding claim 6, the Examiner takes Official Notice that it is obvious that resolution is

either set by the number of pixels or the number of colors. This is well known for one of the

ordinary skilled in the art the resolution can be determined by either spatial resolution, number

of pixels or color resolution, number of colors.

For claim 7, Sogabe further teaches an information supplying apparatus further

comprising storing means for storing the image data of the omnidirectional images (FIG. 1,

element 26) which is encoded by the encoding means (as discussed in claim 1).

Referring to claim 8, Sogabe also teach an information supplying apparatus further

comprising combining means for combining the image data of the omnidirectional images

which is encoded by the encoding means into one file of image data, wherein the storing means

stores the one file of image data combined by the combining means (image position file to store

omnidirectional images photographed at the same time) (column 7, lines 10-20).

Regarding claim 9, as discussed in claim 1 regarding lower resolution limitation and other mentioned claims regarding transmitting means and storing means, Sogabe further teaches a converting means for converting, based on the viewpoint information (FIG. 18, element 6 and column 13, lines 43-50).

Regarding claims 11-13, please refer back to claims 1 and 3 for further teachings and explanations.

7.   Claims 4-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sogabe et al. U.S. Patent No. 6,762,789 and Aliaga et al. U.S. Pub. No. 2002/0176635, as applied to claim 3 above, and further in view of Dekel et al. U.S. Patent No. 7,024,046.

Regarding claim 4, as disclosed in claim 1, Sogabe teaches an encoding method. Sogabe does not explicitly teach the encoding mean to encode the image data in a joint photographic experts group 2000 format. Dekel further teaches a method to processing image information data (abstract) wherein data can be encode in a joint photographic experts group 2000 (column 1, lines 35-40). Modifying Sogabe's method of procession data information according to Dekel would be able to utilize joint photographic experts group 2000 to encode image data. This would improve processing because this format would allow progressive transmission of an image so that the quality of the image display at the client site improves during the transmission (column 1, lines 38-42) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Sogabe according to Dekel.

Regarding claim 5, as discussed in claim 1, Sogabe teaches the encoding means encodes

the image data (column 11, lines 15-22) of the omnidirectional images (column 11, lines 4-11).

Sogabe does not explicitly teach an encoding method wherein encode images in the second

direction, an image in a direction farther from the first direction an even lower resolution.   Dekel

further teaches a method to processing image information data (abstract) wherein an encoding

method encodes (abstract, last 6 lines) image in the second direction farther from the first

direction has even lower resolution (as further the direction is away from the original's direction

resolution, the resolution is decreasing) (also, this encoding method has the ability to code a

region of interest/ROI with a different/specific desired resolution and thus one resolution in a

different direction of different block can be lower than other block) (FIG. 26; column 25, lines

18-32; and column 29, lines 5-40). Modifying Sogabe's method of procession data information

according to Dekel would be able to encode image in a second direction farther from the first

direction has an even lower resolution. This would improve processing because this would allow

the system to eliminates the need to store a compressed version of original image (column 2,

lines 63-65) and also avoids the computationally intensive task of compression of the full image

(column 2, lines 65-67) and therefore, it would have been obvious to one of the ordinary skill in

the art to modify Sogabe according to Dekel.

For claim 10, as discussed in claim 5, Sogabe teaches selecting means for selecting,

based on the viewpoint information (FIG. 21, S202) received by the receiving means (FIG. 13,

"IMAGE PICKUP POSITION OBTAINING MEANS") from the information processing

apparatuses and transmitting (as discussed in claim 1). Similarly to claim 5, Sogabe does not

explicit teach a highest resolution of the resolutions of the image data of the images in the second

direction which has a resolution lower than or equal to the resolution. Similarly as discussed in claim 5, Dekel teaches a method to processing image information data (abstract) wherein an encoding method encodes (abstract, last 6 lines) image in the second direction farther from the first direction has even lower resolution (as further the direction is away from the original's direction resolution, the resolution is decreasing) (also, this encoding method has the ability to code a region of interest/ROI with a different/specific desired resolution and thus one resolution in a different direction of different block can be lower than other block) (FIG. 26; column 25, lines 18-32; and column 29, lines 5-40). This would improve processing because this would allow the system to eliminates the need to store a compressed version of original image (column 2, lines 63-65) and also avoids the computationally intensive task of compression of the full image (column 2, lines 65-67) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Sogabe according to Dekel.

CONCLUSION

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to image information providing, encoding, and transmitting in omnidirection:

U.S. Pat. No. 6,729,546 to Roustaei, teaches system for reading two-dimensional images using ambient and/or projected light.

U.S. Pub. No. 2001/0055422 to Roustaei, teaches system for reading two-dimensional images using ambient and/or projected light.

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The

examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mathew Bella can be reached on 571-272-7778. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Le
March 15, 2007